

Amendments to the Specification:

Page 7, please amend the two consecutive paragraphs beginning on line 4 as follows:

The compressor includes a sealing arrangement between the rear-facing surface of the compressor wheel **30** and the fixed wall **20** of the compressor housing. The space between the wheel and the fixed wall represents a leakage pathway through which high-pressure air and gaseous fuel could leak into the bearing casing. At least part of the leaking pathway is defined between the rear surface of the compressor wheel **30** and the fixed wall **20** of the compressor housing. As previously noted, leakage of fuel into the bearing casing must be prevented. The sealing arrangement includes a hydraulic resistance element or seal **42** spaced radially outward of the bearing casing. Thus, a portion **44** of the leakage pathway is defined between the hydraulic resistance element **42** and the bearing casing. The portion **44** is free of any hydraulic resistance elements. The hydraulic resistance element **42** is shown as a labyrinth seal, although other types of seals for providing a high hydraulic resistance (e.g., brush seals) can be used instead. At least one pressurized air supply duct **46** extends through the compressor housing into the portion **44** of the leakage pathway.

In operation, pressurized air (as indicated by arrow **48**) is supplied via the supply duct **46** into the pathway portion **44**. The air is “clean”, i.e., free of fuel. The pressurized air is supplied at a pressure exceeding that in the main gas flow path of the compressor (i.e., the pressure at the radially outward side of the outer seal **42**). Accordingly, a portion **50** of the pressurized air will flow inwardly along the pathway portion **44** into the bearing casing. This air is evacuated from the bearing casing, along with oil that has already lubricated the bearing, through a drain duct **52**. The air and oil can then be processed in an air-oil separator or the like, so that air that has been cleaned of oil vapors can be discharged to atmosphere, while the oil can be recovered. The remainder **54** of the pressurized air supplied to the pathway portion **44** will flow outwardly past the seal **42** into the main gas flow path of the compressor, and ultimately into the discharge duct **18**. Thus, the sealing arrangement effectively eliminates virtually all possibility of fuel leakage into the bearing casing, such that substantially no fuel escapes from the compressor. The relative

proportions of the air flows into the bearing area and out to the main gas flow path can be controlled by design procedures that are within the routine capability of those skilled in the art.

Page 8, please amend the paragraph beginning on line 8 as follows:

A second embodiment of the invention is shown in FIG. 2. The compressor 110 of FIG. 2 is substantially similar to the compressor 10 of FIG. 1 (having a leakage pathway at least part of which is defined between the rear surface of the compressor wheel 30 and the fixed wall 20 of the compressor housing), except as noted below. The sealing arrangement of the compressor 110 includes a set of auxiliary blades 60 mounted on the rear surface of the compressor wheel 30, and may also include a hydraulic resistance element or seal 40 as shown. The auxiliary blades are spaced radially outward of the seal 40 such that a cavity or portion 44 of the leakage pathway is defined between the blades and the seal. A pressurized air supply duct 46 leads into the portion 44 of the leakage pathway. The auxiliary blades are configured to draw air radially outwardly through the blades and compress the air to a higher pressure. Accordingly, in this embodiment, the pressurized air 48 supplied through the supply duct 46 can be supplied at a pressure less than that in the main gas flow path of the compressor, but higher than the pressure in the bearing casing.

Page 10, please amend the paragraph beginning on line 13 as follows:

FIG. 5 shows a compressor 210' generally similar to that of FIG. 3 (having a leakage pathway at least part of which is defined between the rear surface of the compressor wheel 30 and the fixed wall 20 of the compressor housing), but having an air or magnetic (or combination air/magnetic) bearing 24' instead of an oil-lubricated bearing. The innermost hydraulic resistance element is omitted in this embodiment, although it may be included if desired. Thus, the sealing arrangement comprises hydraulic resistance elements or seals 42 and 70 that are radially spaced apart to define a cavity 72 between them. The leakage pathway portion 44 that extends radially inward from the inner seal 42 into the bearing casing is free of any further hydraulic resistance elements. The pressurized air supply duct 46 leads into this pathway portion 44. A recirculation duct 74 extends from the cavity 72 back to the compressor inlet duct 14. In

Appl. No.: 10/661,850
Amdt. dated 01/03/2006
Reply to Office action of August 3, 2005

operation, clean pressurized air 48 is fed into the pathway portion 44 at a pressure higher than that in the bearing casing 22 but lower than that in the main gas flow path of the compressor. One portion 50 of the air will flow inwardly along the pathway portion 44 into the bearing casing. The remainder of the air 76 will flow outwardly past the seal 42 into the cavity 72. Since the pressure in the cavity 72 is lower than that in the main gas flow path, some air and gaseous fuel will flow from the main gas flow path inwardly past the outer seal 70 into the cavity 72, as indicated by arrow 78. The air and fuel in the cavity 72, however, is still at a higher pressure than in the inlet duct 14, and hence this air and fuel will flow through the recirculation duct 74 back into the inlet duct 14. In this manner, fuel is prevented from leaking into the bearing casing and therefore substantially no fuel escapes from the compressor.